Volunteer Lake Assessment Program Individual Lake Reports

ASHUELOT POND, WASHINGTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	16,000	**Max. Depth (m):**	7.8	**Flushing Rate (yr^{-1})**	12.5
Surface Area (Ac.):	299	**Mean Depth (m):**	2	**P Retention Coef:**	0.45
Shore Length (m):	8,400	**Volume (m^3):**	2,892,000	**Elevation (ft):**	1445

TROPHIC CLASSIFICATION

Year	Trophic class
1986	MESOTROPHIC
2004	MESOTROPHIC

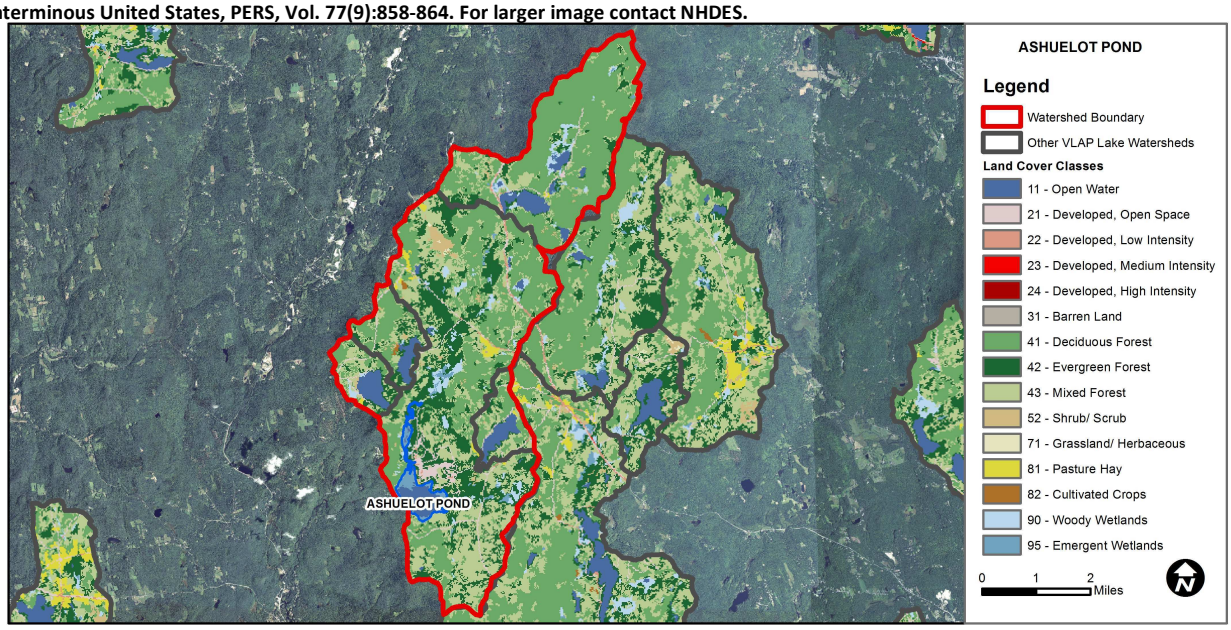
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	Oxygen, Dissolved	Very Good	There are a total of at least 10 samples with 0 exceedances of criteria.
	Dissolved oxygen satura	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.63	Barren Land	0.05	Grassland/Herbaceous	0.09
Developed-Open Space	2.73	Deciduous Forest	41.1	Pasture Hay	0.86
Developed-Low Intensity	0.37	Evergreen Forest	19.28	Cultivated Crops	0.1
Developed-Medium Intensity	0	Mixed Forest	24.47	Woody Wetlands	2.59
Developed-High Intensity	0	Shrub-Scrub	1.17	Emergent Wetlands	1.54

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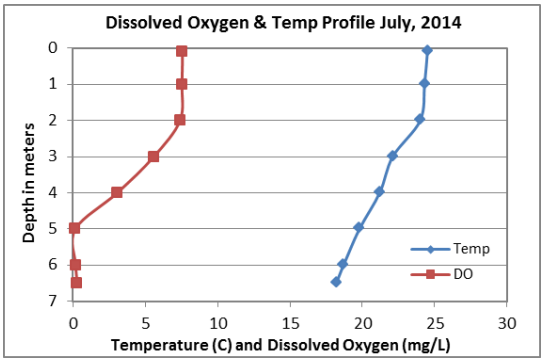
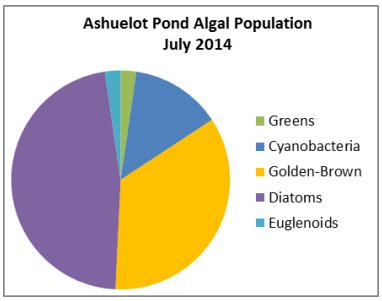
2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels increased slightly from May to June and then decreased from July to August. Average chlorophyll levels were slightly less than the state median and historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began. We hope to see this continue!
- **Conductivity/Chloride:** Deep spot and tributary conductivity levels remained low and were particularly low in early July. Average conductivity is much less than the state median and historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity since monitoring began. Many other lakes in the area have also experienced improved conductivity.
- **E. coli:** Beach E. coli levels were much less than the state standard of 88 cts/100 mL for public beaches on each sampling event.
- **Total Phosphorus:** Epilimnetic phosphorus increased slightly from June to August but average levels were less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus levels since monitoring began; we hope to see this continue! Hypolimnetic (lower water layer) phosphorus levels fluctuated slightly from month to month but remained in a low range. Tributary phosphorus levels generally remained low on each sampling event. Millen Inlet experienced slightly elevated phosphorus in July following a significant rain event.
- **Transparency:** Transparency remained fairly stable throughout the summer and average transparency decreased slightly from 2013. Transparency measured with the viewscope (VS) in July was much better than that measured without and likely a better representation of actual conditions. Historical trend analysis indicates stable transparency since monitoring began.
- **Turbidity:** Epilimnetic and hypolimnetic turbidities remained fairly stable from June through August and were within an average range. Tributary turbidities were generally low, however Millen Inlet turbidities increased slightly following rain events in June and July.
- **pH:** Deep spot and tributary pH levels have historically remained less than the desirable range 6.5—8.0 units and could be critical to aquatic life. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.
- **Recommended Actions:** The improving water quality trends are encouraging! However, the increased frequency and intensity of storm events in the region highlights the importance of managing stormwater runoff in the watershed. Educate lake and watershed residents as well as local governments on ways to reduce stormwater runoff from dirt and gravel roads, lawns, and steep slopes. Maintain vegetated buffers along the shoreline to help reduce stormwater erosion and filter pollutants before they enter the lake. DES' "NH Homeowner's Guide to Stormwater Management" is a great resource. Keep up the great work!





NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Station Name	Table 1. 2014 Average Water Quality Data for ASHUELOT POND								
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	0.45	3.80	19.0		10	2.63	3.68	1.27	5.37
Hypolimnion			19.6		10			1.47	5.41
Lae Beach Shallow				5					
Marina Inlet			18.2		9			0.89	5.53
Millen Inlet			19.7		10			1.03	5.57
Outlet			18.9		9			1.06	5.66
River Inlet			18.6		9			0.94	5.65

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Improving	Data significantly decreasing.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.